

IN THE DRAWINGS

Applicant has submitted new Figures 2, 9, 12E, 12F, 19, 27B, 27C, and 27D with minor corrections. No new matter has been added.

IN THE SPECIFICATION

Please change the title as amended below:

~~APPARATUSES AND METHODS FOR FORMING ELECTRONIC ASSEMBLIES~~

DISPLAY DEVICE WITH AN ARRAY OF DISPLAY DRIVERS RECESSED ONTO A SUBSTRATE

Please replace paragraph [0009] with the new paragraph [0009] below:

[0009] A gap 917 of approximately 200 μm exists between the anode 2 and the cathode 8. This gap may be created by inserting a nonconductive layer of approximately the thickness of the gap. A flexible frit 30 may include a material such as glass fibers bound together with epoxy materials is formed between anode 2 and cathode 8.

Please replace paragraph [0085] with the new paragraph [0085] below:

[0085] Figures 14A-14E illustrate another embodiment of the double-template transfer in which individual types of objects are transferred to a receiving substrate. While these figures show the end result of each type of object transferred to recessed regions made to receive that particular object, the steps used to transfer a type of object is based upon the double-template transfer method as illustrated in U.S. Patent Application Serial No. 09/270,159 entitled

“Methods and Apparatus for Fabricating A Multiple Modular Assembly, now U.S Patent Number 6,316,278.” **Figure 14A** illustrates a template that has various shaped recessed regions. **Figure 14B** illustrates the transfer of a first shaped object to the template. For example, a block having emitters and gates is shown to be transferred to the first template by FSA. If FSA is unable to transfer all of the blocks to the first template, the "pick and place" method may be used to place the block onto the first template. The double-template transfer, as described above, may then be used to transfer the plurality of blocks to the first template. **Figure 14D** illustrates that a spacer has been transferred to the first template. **Figures 14C-14D** illustrates the plurality of objects have been transferred completely using the methods described herein such as FSA or “pick and phase.” **Figure 14E** illustrates a second template coupled to the first template. ~~**Figure 14F** illustrates that the~~ The plurality of objects have been can be released from the first template and are attached to the second template similar to previously discussed with relation to Figure 13E. The plurality of objects is ~~are~~ released from the first template for example by breaking the vacuum. If release tape is used to hold the blocks in place, a plurality of objects are released by applying heat to the tape causing the plurality of objects to be released.

Please replace paragraph [0086] with the new paragraph [0086] below:

[0086] While **Figures 14A-14EF** illustrate the single transfer of blocks having emitters and gates, driver chips, and spacers, these objects could undergo double-template transfer in a different order. For example, the driver chip could be placed first into recessed regions rather than using FSA to place the blocks first onto the first template. Similarly, any combination of two or more objects may be placed onto the first template by FSA using the double-template method described above.

Please replace paragraph [0087] with the new paragraph [0087] below:

[0087] **Figure 15** illustrates one method of assembling a display along the length of a ~~substrate~~ 80 substrate in accordance with an embodiment of the invention. Objects are assembled into the openings of the substrate at operation 80. Utilizing an FSA process, blocks having a

plurality of emitters and gates are deposited in a slurry. The blocks then go into the recessed regions of the substrate by sliding into recessed regions of the substrate. A plurality of spacers is then deposited onto the substrate. The spacers then slide into recessed regions of the substrate. Driver chips also may be deposited onto the substrate. Planarization of the assembly of objects into a substrate is the next operation 82. A variety of methods may be used to planarize the various objects. For example, planarization may take place by depositing a material which may be used to flatten the plurality of objects or may be subjected to conventional chemical-mechanical polishing. Then, the electrical coupling of the plurality of blocks takes place at 84 by opening holes in the planarization layer and depositing metalization material or other conductive materials into the holes and beyond the holes to form an interconnect (*e.g.*, a row or column interconnect) between the blocks. The display is made to conform the object's shape at operation 88. A display generation substrate (*e.g.*, a phosphor layer) is coupled to the active matrix backplane at operation 89.

Please replace paragraph [0092] with the new paragraph [0092] below:

[0092] Figure 20A illustrates a method of fabricating a display device in which a substrate and a display tape undergo processing and are subsequently coupled. The substrate is advanced along a process line at operation ~~at operation~~ 500. A first slurry containing a plurality of blocks in which each block has a plurality of emitters and gates is dispensed onto the substrate at operation 502. The first slurry also may contain a variety of additional objects such as driver chips and spacers. This is the preferred embodiment. Other embodiments entail each individual object separately dispensed onto the substrate and each object slides into recessed regions that are slightly longer than the objects that they are set to receive. In these embodiments, each type of object has its own container before it is dispensed and each type of object is separately recycled.

Please replace paragraph [00100] with the new paragraph [00100] below:

[00100] The formation of plasma displays by implementing techniques of the invention is described below relative to **Figures 27-30F31**. **Figures 27A-27G** illustrate the assembly of rods onto a substrate. **Figure 27A** illustrates a first substrate 662. The first substrate 662 is comprised of glass but other rigid material may be used. **Figure 27B** illustrates a planar side view of recessed regions or apertures 669 created in first substrate 662. First substrate 662 has a plurality of recessed regions that are sized and shaped to receive rods 614. In this particular embodiment, a recessed region has a diameter slightly greater than the diameter of the object that it is established to receive. For example, rods 614 are sized and shaped slightly smaller than the recessed regions that are set to receive 685 them. **Figure 27D** illustrates recessed regions 679 for spacers 668 and recessed regions 679 685 for barrier ribs 666 are created in the substrate and are slightly larger than the diameters of the objects that they are set to receive. These recessed regions may be created in a variety of methods such as that which is described in co-pending U.S. Patent ~~No. Application Serial No. 09/270,165~~ 6,281,038 entitled "*Apparatuses and Methods for Forming Assemblies*" (Docket No. 003424.P016).

Please replace paragraph [00101] with the new paragraph [00101] below:

[00101] **Figure 27D** illustrate a cross-sectional view of rods 614 deposited into their respective recessed regions 669. **Figure 27E** illustrates spacer 668 placed into recessed region 679 675. **Figure 27F** illustrates barrier rib 666 665 in

Please replace paragraph [00108] with the new paragraph [00108] below:

[00108] **Figures 30A through 30E** show planar side views as to how the transfer of rods with circuit elements thereon are transferred to substrates that are used to form displays or other assemblies. **Figure 30A** illustrates a planar side view of a template (donor substrate) 855. **Figure 30B** illustrates recessed regions in template 855. These recessed regions may be made by a variety of conventional methods and another method described in co-pending U.S. Patent ~~No. Application Serial No. 09/270,157~~ 6,555,408 entitled "*Methods for Transferring Elements From A Template to a Substrate*" (Docket No. 003424.P009). **Figure 30C** illustrates a first plurality of objects dispensed onto template 855. In this embodiment, rods 660, barrier ribs

662, and spacers 664 are dispensed onto template 855. It will be appreciated that these objects may be dispensed in several operations such as dispensing each type of object in one operation or a variety of objects may be dispensed onto template 855 in an operation. If the objects do not fill all of the recessed regions, a second plurality of objects may be dispensed onto template 855. Template 855 may be comprised of rigid material such as metal including steel, stainless steel, molybdenum, aluminum, invar, beryllium, copper, brass, and glasses such as quartz, soda lime, borosilicate or plastics such as polyimide, polyamide, ABS, PVC, acrylic, polycarbonate, nylon, and ryton. These templates are manufactured by a variety of methods such as injection molding or by using a press that makes impressions into a template base comprised of the materials listed above. **Figure 30C** illustrates a planar side view of a template 855 in which rods 660 are seated in recessed regions. The rods may be kept in place by a variety of methods. In one case, the rods may be deposited by FSA onto the template and then secured by a release tape which is placed over the rods and the top surface of the template. Additionally, electrostatic forces or vacuum may be used to hold the rods in place.

Please replace paragraph [00112] with the new paragraph [00112] below:

[00112] Co-pending U.S. Patent Application Serial No. 09/270,146, now abandoned, entitled "*Apparatuses And Methods For Forming Assemblies*" (Docket No. 003424.P008), filed by Jeffrey J. Jacobsen, Glenn Wilhelm Gengel, and Gordon S. W. Craig and assigned to the same Assignee as the present invention, describes an electronic modular assembly. This co-pending application is hereby incorporated herein by reference.

Please replace paragraph [00113] with the new paragraph [00113] below:

[00113] Co-pending U.S. Patent ~~No. Application Serial No. 09/270,157~~ 6,555,408 entitled "*Methods For Transferring Elements From A Template To A Substrate*" (Docket No. 003424.P009), filed by Jeffrey J. Jacobsen, Mark A. Hadley, and John Stephen Smith and assigned to the same Assignee of the present invention, describes an FSA on a template with transfer to another substrate. This co-pending application is hereby incorporated herein by reference.

Please replace paragraph [00114] with the new paragraph [00114] below:

[00114] Co-pending U.S. Patent ~~No. Application Serial No. 09/270,159~~ 6,316,278 entitled "*Methods and Apparatuses For Fabricating A Multiple Module Assembly*" (Docket No. 003424.P010), filed by Jeffrey J. Jacobsen, Glenn Wilhelm Gengel, and Gordon S. W. Craig and assigned to the same Assignee as the present invention, describes an electronic modular assembly. This co-pending application is hereby incorporated herein by reference.

Please replace paragraph [00115] with the new paragraph [00115] below:

[00115] Co-pending U.S. Patent ~~No. Application Serial No. 09/270,147~~ 6,274,508 entitled "*Apparatuses And Methods Used In Forming Electronic Assemblies*" (Docket No. 003424.P011), filed by Jeffrey J. Jacobsen, Glenn Wilhelm Gengel, and John Stephen Smith and assigned to the same Assignee as the present invention, describes a method of molding substances. This co-pending application is hereby incorporated herein by reference.

Please replace paragraph [00116] with the new paragraph [00116] below:

[00116] Co-pending U.S. Patent ~~No. Application Serial No. 09/268,755~~ 6,468,638 entitled "*Web Process Interconnect In Electronic Assemblies*" (Docket No. 003424.P012), filed by Jeffrey J. Jacobsen, Glenn Wilhelm Gengel, Mark A. Hadley, Gordon S. W. Craig, and John Stephen Smith and assigned to the same Assignee as the present invention, describes a method of creating various interconnects on a web tape. This co-pending application is hereby incorporated herein by reference.

Please replace paragraph [00117] with the new paragraph [00117] below:

[00117] Co-pending U.S. Patent ~~No. Application Serial No. 09/270,165~~ 6,281,038 entitled "*Apparatuses And Methods For Forming Assemblies*" (Docket No. 003424.P016), filed by Jeffrey J. Jacobsen and assigned to the same Assignee as the present invention, describes a method of rolling objects into their recessed regions. This co-pending application is hereby incorporated herein by reference.